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File Code: 3420 **Date:** 30 July 1999
Route To:

Subject: Root Disease Evaluation In The Tornado Timber Sale Area, Hume Lake District, Sequoia National Forest (FPM Report No. C99-3)

To: Hume Lake District Ranger

On July 7, 1999, I accompanied Larry Burd to two units (# 55 and 178) within the Tornado Timber Sale. The general objectives of this sale are to improve forest health and reduce fuel ladders by thinning from below. The purpose for our visit was to determine if openings within the units were due to root disease, and if so, how this might affect or alter the implementation of the timber sale.

The units we visited had been heavily logged or clear cut in the early 1900's. The stands that regenerated since then are primarily ponderosa pine with small amounts of white fir, incense-cedar, sugar pine and California black oak. They are typed as P3P, which designates poorly stocked stands of small sawtimber. Subsequent to the heavy logging at the turn of the century, the stands were thinned in the 1970's and salvaged in the early to mid 1990's.

Openings in these units were typical of those caused by root disease, particularly Heterobasidion annosum (annosus root disease). The openings contained numerous stumps, snags and down logs. What was not typical of root disease was that most of the mortality seemed to have occurred at about the same time (within a period of a few years), but none of the mortality was recent (occurring in the past 3 years). We examined numerous stumps but were unable to find any conks produced by H. annosum. Our conclusion was that most of the mortality had occurred during the drought years between the late 1980's and early 1990's, with bark beetles being the primary mortality agent.

Viable conks of the annosus root disease fungus were found inside an old 30" diameter white fir stump adjacent to an opening in Unit 55. This form of the pathogen (S-type) is only a threat to true fir and giant sequoia. Because white fir is not a desired species in these stands, the presence of root disease is not considered significant.

District personnel were clearly alert enough to suspect root disease activity in openings within the Tornado Timber Sale. Fortunately, in this situation root disease is not a factor requiring attention. Keep in mind, however, that annosus root disease is fairly common in true fir on the Hume Lake Ranger District and can affect giant sequoia. Enclosed with this report is Forest Service Handbook FSH 3409.11, R5 Supplement No. 3409.11-94-1 which describes the biology and management of annosus root disease in California. This is an excellent reference that provides detailed information on an important forest disease.

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